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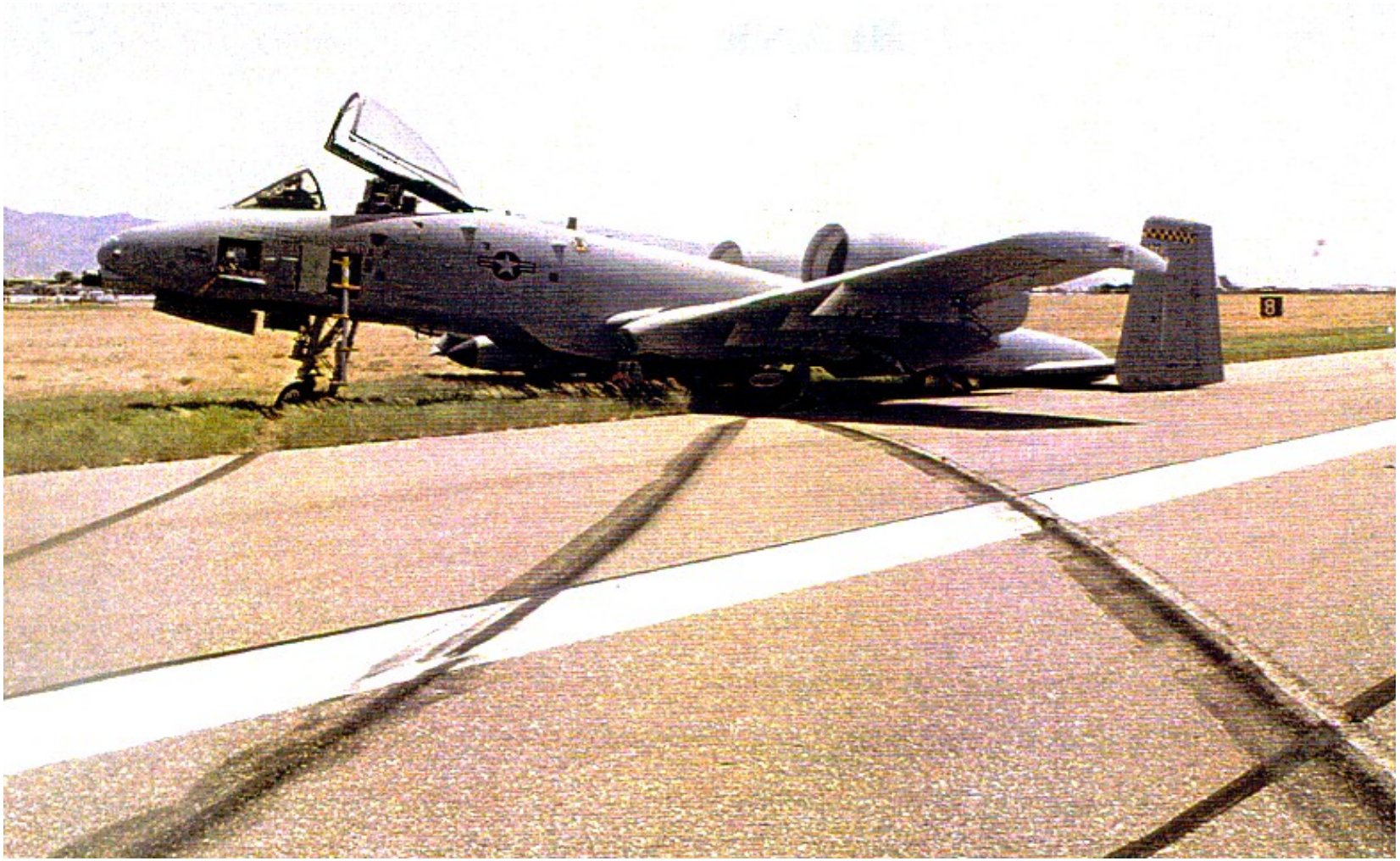
Mishap Investigation Process



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Introduction

- **Process Outlined in AFI 91-204, Safety Investigations and Reports**
- **Relatively Straight-Forward Process**
  - Produce
  Recommendations to Prevent Similar Mishaps
- **Briefing, Message and “White Elephant” are the Final Outcome, document the SIB analysis**

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The "White Elephant"

- **Two Parts:**
  - **Part I: Tabs A-S**
    - **Non-Privileged "Facts"**
    - **May be disclosed outside the AF (FOIA)**
    - **Given to AIB**
  - **Part II: Tabs T-Z**
    - **Privileged Documents, Deliberations, Analysis, etc**
    - **Not disclosed outside AF Safety Channels**

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Phase One - Days 1-1

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Investigation Timelines

- **"Clock" starts day of mishap**
  - **After 30 days, the SIB should be complete and ASAP brief the convening authority (approx 2 weeks)**
- **Investigation can be broken into three 10 day periods:**
  - **Days 1-10--Gather the evidence, "What happened?"**
  - **Days 11-20--Analyze the evidence, "Why did it happen?"**
  - **Days 21-30--Write the report, prepare the briefing; final message**

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Where Will SIB Support Come From?

- **The nearest Air Force base to a mishap is designated as the host installation for the investigation and provides…..**
  - **Clerical help and other personnel as required**
  - **Office space with secure storage capability**
  - **Communications, food and water, transportation, shelter, specialized clothing**
  - **A contracting officer to assist the SIB with any additional locally procured items**
  - **etc, etc, etc…..**

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Days 1-10

- All primary members should arrive within 72 hours
  - AFSC Rep spends 1-2 days gathering reports
- (Space) – AIB President arrives at same time as SIB President
- Need all primary members before the turnover with the Interim Safety Board, but……

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Days 1-10
Interim Board Hand-off

- **ISB President conducts the handoff**
  - **Overview of all known facts**
  - **Actions accomplished to date**
- **All evidence must be accounted for-- checklist works well**
- **Each board member should meet with counterpart to determine additional evidentiary requirements**
- **Once handoff complete ISB members return to normal status, but need to be available in the short term if questions arise**

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Getting Started - Overview

- Transfer of Responsibility from ISB to SIB
- Immediately Secure Office Space
  - "Home Away From Home"
- Never Have Enough Computers or Clerical Help
- Assign Responsibility for Each Tab to Specific Individual
- Start a Filing System ASAP
  - Overwhelming Volumes of Paper/Evidence the SIB Collects
- Courtesy Visit to the Wing CC

Getting Started - Overview

File Inventory

Item	Bin #
8 Hour Prelim Report	1
AFTO Form 781 (MA)	2
Flight Records (MP)	3
Weather Observations (Local)	4
Witness Statements (MP)	5

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Days 1-10
The Initial Investigation...

Focus on: ***What Happened?***

- **<u>Not</u>: Why Did It Happen?**
- **<u>Not</u>: How Do We Solve It?**

Not Yet!

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What to Why

- **Once *What* Happened is Determined, Go to *Why* It Happened**
- **"The Why" Is the Only Thing That Will Prevent Mishap Reoccurrence. For Example.....**
  - **The What - Elevator falls off aircraft resulting in a Class A Mishap**
  - **The Why - Bolt failed due to improper T.O. installation guidance, human factors, material factors, etc.?**

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What to Why

- Without Finding “The Why”, the Failure Will Occur Over and Over
- Keep Asking “Why” until Reaching a Dead End
  - Elevator Fell Off…Why?
    - Bolt Failed…Why?
  - Improperly Installed…Why?
    - T.O. Wrong…Why?
  - Not Field Tested…Why?

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Days 1-10 Board Requirements

- **Listed in Attachment 2 to AFI 91-204**
  - **ISB/Local Wing should have "taken care of" prior to SIB arrival**
  - **Typical "weak" areas:**
    - **"Small" main SIB meeting room, rooms scattered**
    - **Inadequate recording/transcribing equipment**
    - **Re-keying the locks**
    - **Clerical help**
    - **White Boards**
    - **"Old" computers/software**

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Days 1-10 Board Requirements

- **Computer Support…..**
  - **One Computer per SIB member**
- **Internal LAN**
  - **Firewall with base**
  - **2 printers connected**
- **Internet Access**
  - **E-mail accounts for all**
- **24/7 computer support**

Back-up all your work!

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Days 1-10 Crash Site

- **First week divided between crash site and SIB office**
  - **“Gee Whiz” the site/wreckage early**
  - **Sheer enormity of location, travel time, WX, wreckage recovery, work hours, etc., can be overwhelming**
  - **Get with the AFSC REP/IO to determine plan of action**
    - **Who “needs” to go to the site?**
    - **Need to re-photograph?**
    - **When to recover the wreckage?**

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Days 1-10 Crash Site

- **Meet with OSC and:**
  - **Determine equipment and manpower requirements**
  - **Give site access list to OSC and Security Police**
  - **Site hazards……**
- **(Space) – For Launch mishaps, wing forms Impact Recovery Team which identifies, maps, recovers, etc., launch vehicle and spacecraft components**
  - **IRT divided into Recovery Action Teams which are assigned an AOR or search for specific items.**

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Site Hazards

- **Environmental Hazards**
  - **Hot, cold, sun, wind, rain, snow, “critters”**
- **Biological Hazards**
- **Fire Hazards**
  - **Fuel**
- **Radioactive Hazards**
  - **Control Surface Counterweights = depleted uranium**
- **Material Hazards**
  - **Composites**
  - **Explosives (Ammo, pyrotechnics, etc)**
  - **Pressure Vessels (tires, O2 cylinders, etc)**
  - **Sharp Edges**

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Site Hazards

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Site Hazards

- Know what hazards you are dealing with!
- Hazard ID – Survey the Site!
  - Toxic substances unique to the aircraft
  - Pressure vessels
  - Explosives or pyrotechnics
  - Scene and environmental hazards
- Use PPE
- Limit access to site, brief all on hazards
- Don’t put your hand in a place when you can’t see what’s in there!

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Site Hazards

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Site Hazards

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Days 1-10
Crash Site Actions

- **Don’t be in a hurry to move wreckage….**
  - **All photographs taken properly “cataloged”**
  - **ALC/Contractor desire to see prior to moving**
- **Mortuary Affairs issues/photographic support as wreckage recovered**
- **Coordinate with Wing where to “put” wreckage**
- **CE diagram of crash site --Not necessary to plot all pieces, just critical evidence and major pieces to get an idea of the pattern**

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Mishap Site Diagram

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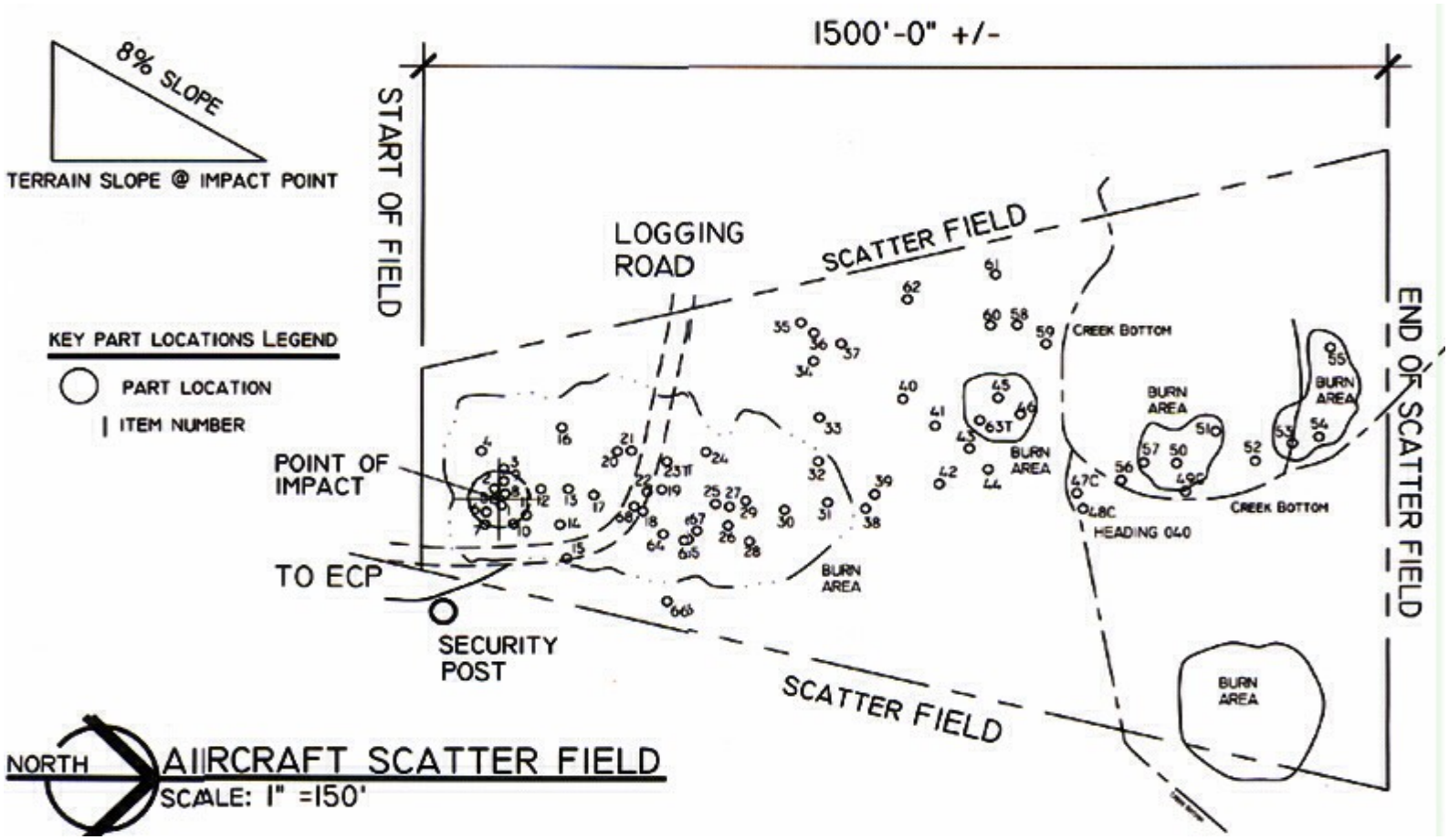
Mishap Site Diagram



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Days 1-10 Initial Space Actions

- SIB and AIB formed at same time
- ROE meeting held between SIB President, AIB President and Engineering Analysis Group (EAG) leader…..
  - Meeting establishes how groups will work together, how mishap info/data will be handled
- SIB hands evidence over to AIB to hand over to EAG
  - SIB sanitizes privileged information
  - Information “flows back” from EAG

EAG ROE found in Chp 9 of 91-204

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Days 1-10
Initial Space Actions

- **Commercial contractors are used to do the technical analysis “teardown”**
  - **SIB and AIB develop teardown plan prior to any analysis occurring**
  - **SIB and AIB retain the right to have evidence analyzed by independent source if they are not comfortable with contactor plan.**

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Days 1-10…… Meanwhile, back at the office

- SIB members reviewing data, developing “game plans”
- IO/AFSC Rep coordinating individual taskings, setting up interview schedule, determining Tech assistance required
- The recorder setting up all admin functions including:
  - Filing, incoming and outgoing mail, incoming and outgoing faxes, Fed Ex logs, duty schedules for the admin troops, chasing down admin supplies (copier, shredder, etc)
- Follow-up/initial interviews taking place
- Contractors/ALC reps inbound or beginning analysis

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Days 1-10 Actions Timeline(s)

- **Set Up Visible Timeline / Get A PLAN!!!!!!!!!**
- **List All Tabs, Label the Columns:**
  - **OPR**
  - **Percentage Completed**
  - **Remarks**
- **Make Additional Charts to List Engineering Evaluations Due, Witness Interviews Needed/Scheduled, etc**

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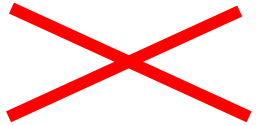
Days 1-10 Actions Progress Board

TAB	NAME	OPR	% COMP	REMARKS
A	Form 711	IO	90	BP Sign
B	8 Hour	IO		Awaiting Final Printing
C	711 B	PM	50	Transcribe
D	MX Report	MM	75	Need Total Engine hours
G	Flt Records	PM	75	Need Better Copy of 942

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Days 1-10
Time Management

- **Board Members Take Their Lead From You**

  - If You Come In Early, Everyone Will Come In Early

  - Same Goes For Staying Late

  - Take A Lunch Break

  - Take A PT Break
- **First Several Days are “anti-climactic”**
- **Work Only A Half Day On Sunday**
- **On Weekends You Can Expect Little Base Support, Use This Time To Work Internal Board Processes**

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Days 1-10
Time Management

- **Daily Meetings: Two a Day vs One a Day, AM vs PM**
- **Set Agenda Each Day:**

  - List Necessary Tasks for Tomorrow & Post Them

  - **Interviews, Evidence Outstanding (I.e.Tower Tapes)**
  - **Post List of Tech Reports, Status and Suspense**
  - **Have Every Member Discuss Taskings, BP Last**
- **Make Sure That Everyone Has Time To Accomplish Their Tasks; Keep Group Meeting Length To A Minimum During this Phase of the Investigation**

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Release of Information…

- **The SIB President <u>will not</u> release any information directly to the news media, NOK, or the public (AFI 91-204, para 7.5)**

- **The public release of evidence concerning a mishap <u>may not</u> be done by or through officials involved in the safety investigation……(91-204, para 2.3.5.2)**

Release of Information…

- **STARS AND STRIPES ON F-XX SALVAGE OPERATIONS…….**

Reporter Wayne Specht interviewed Brig Gen XXXXX, SIB president for the XXXXX mid-air, on the record yesterday. Topics included whether or not salvage operations were being considered, what might be recovered, and if any negative environmental impact from the accident was expected. Expect balanced coverage with publication TBD.

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Release of Information...

- **The whole purpose for getting the AIB President to the scene as soon as possible after the crash is to make it possible for the SIB President to remain "unseen and unheard."**
- **AFI 51-503, para 7.4, requires "48-hour" notification to CSAF prior to any release of information in high-interest mishaps.**
- **We recommend that the SIB President cease giving interviews and that AIB President be the person who provides all necessary interviews in the future, after the "48-hour" notification process has been accomplished.**

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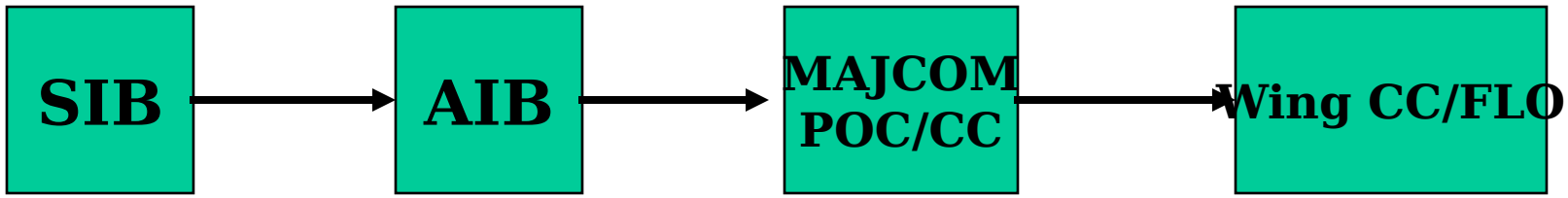
Release of Information…

- **Who can you release information to…….**
  - **The MAJCOM/CC**
  - **The AIB: For mishaps with fatalities the SIB President will release factual information to the AIB President via the AFSC representative IAW AFI 34-1101, Assistance to Survivors of Persons Involved in Air Force Aviation Mishaps.**



What if…..

- **If investigators discover information which seriously impacts the operation of a weapon system or the continuation of an exercise, immediately notify the convening authority by telephone and follow up with a confirming message, regardless of whether or not such information is associated with the mishap under investigation. (91-204 Chp 1.4)**

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What if…..(cont)

- **The convening authority notifies other action agencies, the appropriate SPD or Item Manger (IM), and HQ AFSC. Action agencies determine the proper administrative response depending on the nature and seriousness of the information.**

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Phase One, Investigation: Problem Areas:

- **There Is A Temptation to Grasp at First Plausible "Why," Cease Investigating and Start Writing**
- **Family Requests to Visit the Crash Site….**
  - **AIB President is focal point, scheduling and approval rests with OSC and convening authority**
  - **Suspend all SIB activities to avoid inadvertent compromise of Privilege or deliberations**
- **Transcribing Interviews**

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Phase One, Investigation: Problem Areas

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Phase One, Investigation: Problem Areas

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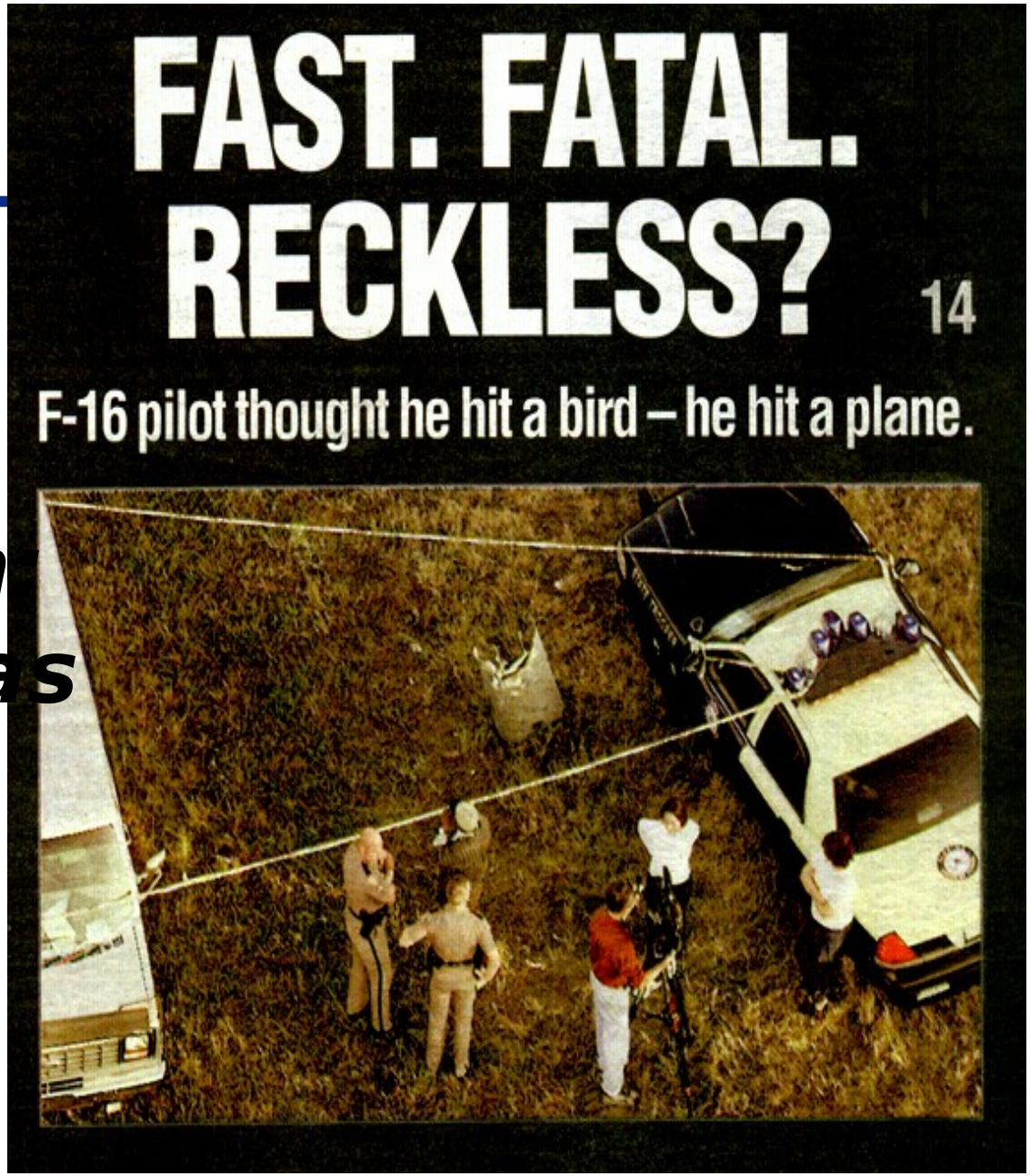
Phase One, Investigation: Problem Areas

FM PACAF HICKAM AFB HI//CC//
TO CNO WASHINGTON DC//N312/N889//
INFO HQ USAF WASHINGTON DC//CC/SE/SEI/,
HQ AFSC KIRTLAND AFB NM//SEF//
5AF YOKOTA AB JA//CC/SE//
35FW MISAWA AB JA//CC/SE//
COMNAVSEASYSCOM WASHINGTON DC//OOC//
CINCPACFLT PEARL HARBOR HI//N3/N4//

RMKS/1. CINCPACFLT: REQUEST YOU PROVIDE ASSETS TO LOCATE, SURVEY, AND ADVISE OF FEASIBILITY FOR CONDUCTING SALVAGE OPERATIONS TO RECOVER PARTIAL WRECKAGE (FLIGHT/DATA RECORDERS, EJECTION SEATS, EXTERNAL STORES) OF TWO F-16CJ AIRCRAFT (T#90-000811 AND T#90-000801). MISHAP SITE LOCATED AT N41-28.07 E139-26.6 IN 1,300-8,000 FEET OF WATER. PINGER DOES NOT MARK WRECKAGE. EACH AIRCRAFT CARRIED 510 ROUNDS OF 20MM AMMUNITION. REQUEST YOU SELECT THE UNIT/EQUIPMENT WITH THE BEST CAPABILITY TO ACCOMPLISH MISSION.

2. FUNDING FOR TRAVEL, PER DIEM, SALARIES AND CONTRACTUAL SUPPORT WILL BE PROVIDED BY SEPARATE CORRESPONDENCE.

Phase One, Investigation Problem Areas



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Phase One - Review
(Fact Gathering / WHAT Happened)

- Early Days Spent at Site Identifying/Analyzing Wreckage
- Contractor and AFMC Tech Experts Do Their Work
- SIB Reviewing/Analyzing Training Records, MX, etc
- Interviews/Transcribing Taking Place
- Wreckage Recovery Likely Beginning
- Usually, Within 7 to 10 Days, SIBs Know "What" Happened
- Theories/Scenarios Begin to Develop as to "Why"

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Aircraft vs Space Mishap Boards

- **Similarities:**
  - **Privilege**
  - **Purpose of the Board**
  - **Determining findings and recommendations**
  - **Written report and briefing to convening authority**
- **Differences**
  - **Subject Matter**
  - **Board Composition**
  - **Timeframe/timeline**
  - **Engineering Analysis Group (EAG)**

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Murphy's Laws of Mishap Investigation

- **The relative importance to the investigation of any aircraft part is directly proportional to the probability it will not be found…..**
- **The more confident your preconceived ideas are, the less likely it happened that way…..**
- **After spending weeks analyzing a witness mark, another board member will tell you he made it during lunch one day in the field……**

Question